NATURAL RESOURCES CONSERVATION SERVICE

FIREBREAK (FEET)

CODE 394

MONTANA CONSERVATION PRACTICE SPECIFICATION

DEFINITION: A strip of bare land or vegetation that retards fire.

PURPOSE:

- To prevent the spread of wildfire
- To control prescribed burns (temporary)

SCOPE: This practice applies on all land uses where protection from wildfire is needed or prescribed burning is applied.

FIREBREAK SPECIFICATIONS: Specifications for applying this practice shall be prepared for each site and recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

Dispose runoff water by rolling the grade, outsloping the firebreaks, or installing waterbars based on the slope and rock fragments. Use TABLE 1 and DIAGRAM 1 to determine the spacing and design requirements for water bars.

Open Area Firebreaks:

For open area firebreaks (rangeland, pastureland, cropland, etc.) the minimum width for a firebreak is 5 feet and the maximum width will not exceed 30 feet.

Expose mineral soil for a width of at least five (5) times the height of the uncut vegetation along the windward side of the firebreak. Wide firebreaks can be established by creating and maintaining two parallel strips of bare soil and then mowing or burning the area between the strips each year.

Forested Area Firebreaks:

In forested areas, the minimum width of a firebreak will be 12 feet. A greater width will be needed depending on fuel, aspect, and topography. Increase the width anytime the forest understory height exceeds 30 inches. Determine the proper width by multiplying the height in feet of the dominant understory vegetation by five (5). Clear large (>5") standing or downed dead woody debris upwind from the edge of the firebreak for a distance equal to the height of the trees.

Use CHARTS 3, 4, and 5 for separation of live vegetation.

Where opportunities exist for establishing fire-retarding vegetation, plant an adapted species of grasses or other vegetation which produces low volumes of herbage. (SEE TABLE 2) When using fire-retarding vegetation, tree overstory and snags must be cleared as indicated above. Mowing or grazing can be used to avoid a build-up of dead litter.

Specification MT394-2

Idle Cropland Firebreaks:

Idle cropland fields need wider firebreak widths than for open area firebreaks—rangeland, pastureland, cropland, etc.—due to the build up and height of the vegetative matter (fuel).

Firebreaks in idle cropland will be installed as a single bare ground strip or a combination of one or two bare ground strips and a mowed area. If two bare ground strips are used, the mowed area will separate the two bare strips. If one bare ground strip and a mowed area are used, the mowed area will be located between the bare ground strip and the remainder of the idle cropland field.

The width of a single bare ground strip–with no mowed strip–will be a minimum of 50 feet and a maximum of 200 feet. The width of any one of the two bare ground strips, when used with a mowed strip, will be a minimum of 50 feet and a maximum of 200 feet.

The width of the mowed strip will be a minimum of 100 feet and a maximum of 150 feet. The vegetation will be mowed using a flail, conventional mower with a sickle bar or a swather with the canvas removed. The vegetation is to be laid flat. The vegetation is not to be mowed in such a way that a windrow will be created.

The width of the firebreak in the idle cropland fields that are immediately adjacent to structures—homes, barns, buildings, etc.—will be approximately 250 feet. This is to better prepare a defense for those structures.

In idle cropland fields where wind erosion is a problem and the "I" factor for the soil is greater than "86," a barrier of unmowed vegetation five (5) feet wide must be retained on the windward side(s) of each bare ground strip. This will help to reduce soil loss from wind erosion.

Firebreaks/Hazardous Fuel Reduction Next to Structures:

The size of a defensible space area varies depending on the type of vegetation and the steepness of the terrain. CHART 1 gives the defensible space distances.

Dead vegetation should be removed from the defensible space area. CHART 2 contains the practices needed for each type of dead vegetation.

Break up the continuous dense cover of shrubs or trees within the defensible space area. CHART 3 contains the separation distances needed for shrubs and Rocky Mountain junipers. CHART 4 contains the separation distances for trees.

Reduce ladder fuels present. CHART 5 contains the vertical separation distances needed between fuel layers.

Create a "Lean, Clean, and Green" space of at least 30 feet surrounding the house. The vegetation should be kept lean, clean, and green.

Annually maintain the vegetation and practice within the defensible space area.

TABLE 1. Water Bar Spacings

SLOPE	ROCK FRAGMENTS (TOP 12" OF SOIL) <35%	35-60%	>60%
<30%	100'	200'	AS NEEDED
>30%	50'	100'	

DIAGRAM 1. Water Bars

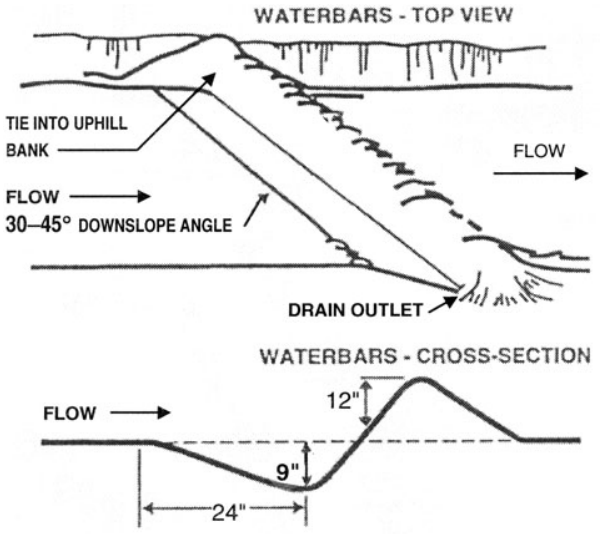


TABLE 2. Selected Species for Establishing Fire-Retarding Vegetative Firebreaks.

SPECIES [1]	CULTIVAR	SEEDING RATE PURE LIVE SEED / ACRE [3] BROADCAST [4] (POUNDS)	DRILLED [4] (POUNDS)	SEEDS PER POUND	PRECIPITATION REQUIREMENTS (INCHES)
Sheep Fescue	*Covar*	5	3	680,000	6-14
Hard Fescue	*Durar*	6	3	565,000	14-20
Canada Bluegrass [2]	*Rueben, Ft. Hills*	3	3	1,600,000	12-22
Common White Clover		4	3	800,000	16 +
Red Clover	*Kenland/Lakeland*	13	6.5	272,000	16 +
Birdsfoot Trefoil	*Empire/Leo*	8	4	418,000	14 +
Orchardgrass [2]	*Potomac/Latar*	7	3.5	464,000	16 +
Alfalfa		10	5	225,000	14 +
Tall Fescue	*Alta, Fawn*	8	4	242,000	16 +
Forage Kochia [5]	*'Immigrant'*	9	4.5	395,000	12 +
Russian Wildrye	*'Bozoisky'-Select*	10	5	75,000	10 +
Crested Wheatgrass	*'Fairway'*	10	5	200,000	10 +
Western Wheatgrass	*'Rosana'*	16	8	93,000	12 +
Streambank Wheatgrass	*'Sodar'*	10	5	152,000	10 +

[1] See FOTG 512–Pasture and Hayland Planting standards and specifications for additional information on soil, site, and climatic adaptation for each species, as well as recommended cultivars.

[2] Recommended for high elevation forest sites only.

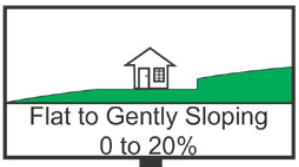
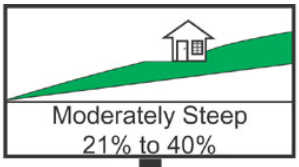
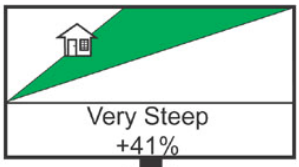
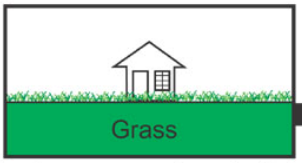
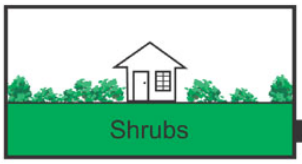
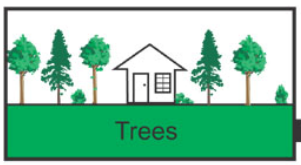
[3] Recommended rate about 80 seeds/square feet for broadcast–40 seeds/square feet for drilled.

[4] Minimum rate at 3 lbs. seed/acre due to equipment and seed physics.

[5] Seed planted within 6 months of harvest of annual crop.

[6] Fairway cultivar only–no substitutions.

CHART 1. DEFENSIBLE AND SURVIVABLE SPACE RECOMMENDED DISTANCES.

VEGETATION TYPE	 Flat to Gently Sloping 0 to 20%	 Moderately Steep 21% to 40%	 Very Steep +41%
 Grass Wildland grasses, weeds, and widely scattered shrubs with grass understory.	30 Feet Defensible 50 Feet Survivable	100 Feet Defensible 200 Feet Survivable	100 Feet Defensible 200 Feet Survivable
 Shrubs Includes shrub dominant areas (such as sagebrush and Rocky Mountain juniper.	100 Feet Defensible 200 Feet Survivable	200 Feet Defensible 400 Feet Survivable	200 Feet Defensible 400 Feet Survivable
 Trees Includes forested areas. If substantial grass or shrub understory is present, use those values shown above.	30 Feet Defensible 60 Feet Survivable	100 Feet Defensible 200 Feet Survivable	200 Feet Defensible 400 Feet Survivable

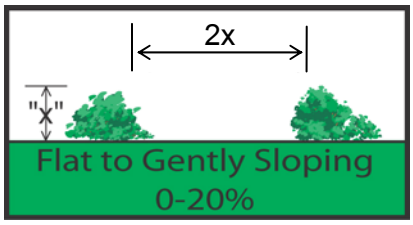
1) Find the percent slope which best describes your property.
2) Find the type of vegetation which best describes the wildland plants growing on or near your property. If more than one type, use most hazardous one.
3) Locate the number in feet corresponding to your slope and vegetation. This is your recommended defensible space distance.

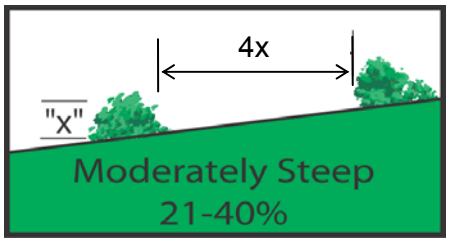
* Please note the recommendations presented in this chart are suggestions made by local firefighters experienced in protecting homes from wildfire. They are not requirements nor do they take precedence over local ordinances.

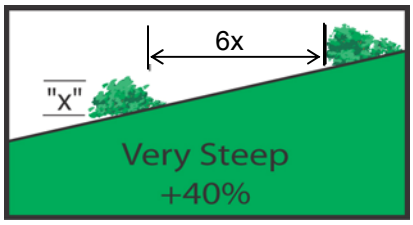
CHART 2. TYPES OF DEAD VEGETATION AND RECOMMENDED PRACTICE.

	RECOMMENDED PRACTICE
STANDING DEAD TREE	Remove all standing dead trees from within the defensible space area.
DOWN DEAD TREE	Remove all down dead trees within the defensible space area if they have recently fallen and are not yet embedded into the ground. Downed trees that are embedded into soil and which cannot be removed without soil disturbance should be left in place. Remove all exposed branches from an embedded downed dead tree.
DEAD SHRUBS	Remove all dead shrubs from within the defensible space area.
DRIED GRASSES and WILDFLOWERS	Once grasses and wildflowers have dried out or "cured," cut down and remove from the defensible space area.
DEAD NEEDLES, LEAVES, BRANCHES, CONES (ON THE GROUND)	Reduce thick layers of pine needles to a depth of two inches. Do not remove all needles. Take care not to disturb the "duff" layer (dark area at the ground surface where needles are decomposing) if present. Remove dead leaves, twigs, cones, and branches.
DEAD NEEDLES, LEAVES, BRANCHES, AND TWIGS (OTHER THAN ON THE GROUND)	Remove all dead leaves, branches, twigs, and needles still attached to living trees and shrubs to a height of 15 feet above ground. Remove all debris which accumulates on the roof and in rain gutters on a routine basis--at least once annually.
FIREWOOD AND OTHER COMBUSTIBLE DEBRIS	Locate firewood and other combustible debris--wood scraps, grass clippings, leaf piles, etc.--at least 30 feet uphill from the house.

CHART 3. SEPARATION DISTANCES NEEDED FOR SHRUBS AND ROCKY MOUNTAIN JUNIPERS.

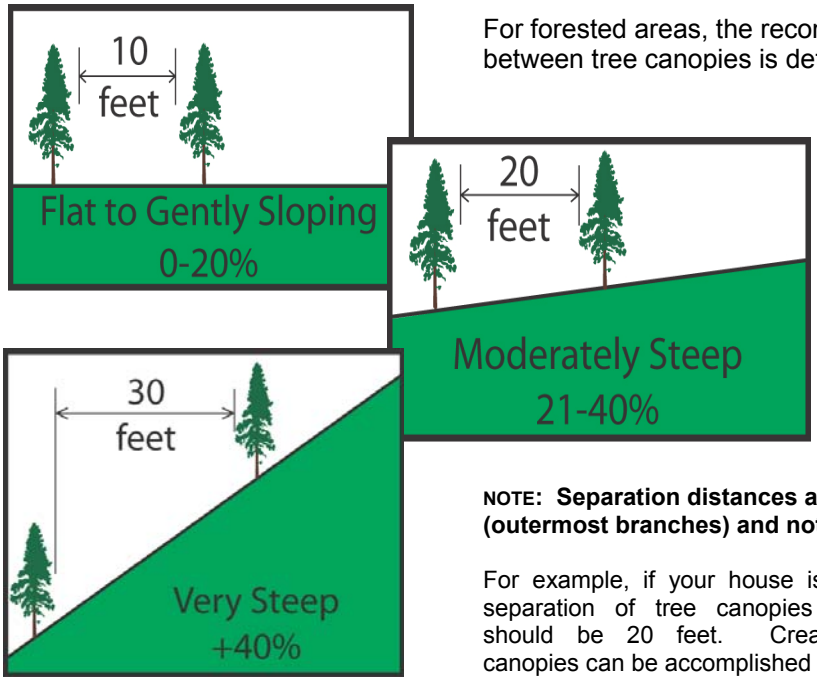






NOTE: Separation distances are measured between canopies (outermost branches) and not between trunks.

CHART 4. RECOMMENDED SEPARATION DISTANCES BETWEEN TREE CANOPIES.



For forested areas, the recommended amount of separation between tree canopies is determined by steepness of slope.

NOTE: Separation distances are measured between canopies (outermost branches) and not between trunks.

For example, if your house is situated on a 30% slope, the separation of tree canopies within your defensible space should be 20 feet. Creating separation between tree canopies can be accomplished through tree removal.

CHART 5. VERTICAL SEPARATION DISTANCES NEEDED BETWEEN FUEL LAYERS